



## MEMORANDUM

**TO:** State Board of Education  
**FROM:** Alyson Luther, Textbook Advisory Committee Chairperson  
**DATE:** October 6, 2010  
**SUBJECT:** Science and Health Textbook Adoption

## REVIEW PROCESS

The Textbook Adoption process in Indiana is governed by [IC 20-20-5-1](#) and overseen by the Textbook Advisory Committee (TAC) and the Indiana Department of Education (IDOE). In the past, the process for the adoption of textbooks and instructional materials has been similar for all content areas. The textbooks and instructional materials for which bids were submitted, underwent a review for their alignment to Indiana Academic Standards by content specific reviewers which were secured by the TAC. Materials were reviewed for alignment to standards, and recommendations were then provided to the TAC for their consideration. The TAC had authority to reject materials on the basis of lack of alignment to the standards.

With approval from the TAC, a new procedure to better inform the SBOE and schools concerning the quality of textbooks and accompanying materials has been created and was implemented for the first time with the Science and Health, 2010 adoption. Rubrics were created by the IDOE and used by the appointed reviewers as part of the review process. The overall format and structure for both the Science and Health rubrics that were used was adopted from the Analyzing Instructional Materials process developed by West-Ed and Biological Sciences Curriculum Study (BSCS). The content of the Health rubrics was adopted from the Centers for Disease Control and Prevention's Health Education Curriculum Analysis Tool (HECAT), and the American Cancer Society document, National Health Education Standards: Achieving Excellence. The rubrics allow for an in depth analysis of the general characteristics of the materials; the degree to which they align with the academic standards; the degree to which they address the work that students and teachers do; and the degree to which assessment is addressed in the materials.

Reviewers for both subject areas were selected using an application process which required that they meet the qualifications of a Highly Qualified Teacher. All of the reviewers were trained in the use of the rubrics and other review process support documents; and were assigned grade bands for their review process.

On July 30, 2010, the appointed reviewers met to discuss their reviews; reach consensus on a total score for each textbook or set of instructional materials; provide a short narrative explanation and support of the results of their review; and report their results to the TAC. Following the assignment of a score and stated recommendation from the appointed reviewers, the TAC's authority and responsibility is to recommend or not recommend the material based on the score and recommendations from the reviewers.

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## RECOMMENDATION

The submitted textbooks and instructional materials that received a standards alignment score of 3 or above were deemed satisfactory by the TAC.

The IDOE and the TAC respectfully submit the attached final ballot and ask the board to approve the recommendations of the Textbook Advisory Committee as outlined.

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## Science and Health Textbook Review Process

### Textbook Adoption Review Process

The Textbook Adoption process in Indiana is governed by [IC 20-20-5-1](#) and overseen by the Textbook Advisory Committee (TAC) and the Indiana Department of Education (IDOE). In 2009 the Textbook Advisory Committee set a chronology for adoption of textbooks for Science and Health to be adopted in 2010. In the past, the process for the adoption of textbooks and instructional materials has been similar for all content areas. The textbooks and instructional materials for which bids were submitted, underwent a review for their alignment to Indiana Academic Standards by content specific reviewers which were secured by the TAC. Materials were reviewed for alignment to standards, and recommendations were then provided to the TAC for their consideration. The TAC had authority to reject materials on the basis of lack of alignment to the standards.

### A Change in the Process

As a result of a review of the adoption process, a new procedure to better inform schools concerning the quality of textbooks and accompanying materials has been created. For the review of the Science and Health materials, the TAC approved the use of a series of rubrics, which were created by the IDOE and then used by the appointed reviewers during their review process. The rubrics allow for an in depth analysis of the general characteristics of the materials; the degree to which they align with the academic standards; the degree to which they address the work that students and teachers do; and the degree to which assessment is addressed in the materials. Using the updated review process; following the review of the materials by the appointed reviewers for each subject area, each textbook and any accompanying instructional materials are assigned a score. The completion of the Analysis Worksheet for each rubric allows the reviewer to document significant notes and findings throughout the review process.

### Rubrics for Science and Health

The overall format and structure for both the science and health rubrics that were used was adopted from the Analyzing Instructional Materials process developed by West-Ed and Biological Sciences Curriculum Study (BSCS). The content of the health rubrics was adopted from the Centers for Disease Control and Prevention's Health Education Curriculum Analysis Tool (HECAT), and the American Cancer Society document, National Health Education Standards: Achieving Excellence. Reviewers for both subject areas were selected using an application process which required that they meet the qualifications of a Highly Qualified Teacher. All of the reviewers were trained in the use of the rubrics and other review process support documents; and were assigned grade bands for their review process. The science materials were reviewed in grade bands of K-2, 3-4, 5-6, 7, 8, Biology, Chemistry, Earth and Space Science, Integrated Chemistry and Physics, and Physics. The health materials were reviewed in grade bands K-5, MS, and HS. **To better assist school corporations in their local adoption process, copies of all of the review process documents (i.e. Rubrics , Analysis Worksheets) and the training videos used for training reviewers, can be found [here](#).**

### Reviewer Recommendations

On July 30, 2010, the appointed reviewers met to discuss their personal reviews; reach consensus on a total score for each textbook or set of instructional materials; provide a short narrative explanation and support of the results of their review; and report their results to the TAC. Following the assignment of a score and stated recommendation from the appointed reviewers, the TAC's authority and responsibility is to recommend or not recommend the material based on the score and recommendations from the reviewers. Those decisions and recommendations can be found at [www.doe.in.gov/opd/textbook](http://www.doe.in.gov/opd/textbook).

As a part of the effort to better inform and assist school corporations towards making purchasing decision that best fit local needs and student success, the total score sheets and support narratives

for all of the materials reviewed, regardless of the recommendation status provided by the TAC, will be made available. That information can be found at [www.doe.in.gov/opd/textbook](http://www.doe.in.gov/opd/textbook).

As a means to select the best available and most locally appropriate resources, the IDEO encourages corporation level review committees to use the provided training materials, rubrics and analysis worksheets, and review results.

SCIENCE CONTENT RUBRIC	(5)	(3)	(1)
<b>STANDARDS ALIGNMENT</b> Indiana science content standards: <ul style="list-style-type: none"><li>- Nature of Science Process Standards,</li><li>- Design Process Standards,</li><li>- Core Standards and Indicators.</li></ul>	<b>Most</b> of the science process and content standards and indicators designated for the specific course and/or grade level are addressed.	<b>Some</b> of the science process and content standards and indicators designated for the specific course and/or grade level are addressed.	<b>Few</b> of the science process and content standards and indicators designated for the specific course and/or grade level are addressed.
<b>ACCURACY</b>  Accurate science content: <ul style="list-style-type: none"><li>- Is grounded in current research and conforms to fact,</li><li>- Includes explanations about science that translate information into developmentally appropriate content without losing original meaning or distorting fact.</li></ul>	<b>Most</b> of the science content is accurate with few errors of fact or interpretation.	<b>Some</b> of the science content is accurate with few errors of fact or interpretation.	<b>Little</b> of the science content is accurate with few errors of fact or interpretation.
<b>CONCEPT DEVELOPMENT</b>  Content developed for conceptual understanding: <ul style="list-style-type: none"><li>- Focuses on a limited number of key concepts,</li><li>- Develops concepts in-depth at a developmentally appropriate level,</li><li>- Requires students to apply and demonstrate their understanding in multiple ways.</li></ul>	<b>Most</b> key science concepts are developed for conceptual understanding.	<b>Some</b> key science concepts are developed for conceptual understanding.	<b>Few</b> key science concepts are developed for conceptual understanding.
<b>SEQUENCING</b>  Content with a coherent sequence: <ul style="list-style-type: none"><li>- Is organized in a deliberate fashion to promote student understanding,</li><li>- Builds from and extends concepts previously developed,</li><li>- Strongly connects concepts to an overarching conceptual framework.</li></ul>	<b>Most</b> of the content has a coherent sequence.	<b>Some</b> of the content has a coherent sequence.	<b>Little</b> of the content has a coherent sequence.
<b>CONTEXT</b>  Content that is context-rich: <ul style="list-style-type: none"><li>- Is presented in an engaging context that is related to real world experiences and situations,</li><li>- Builds on students' prior conceptions,</li><li>- Facilitates the assimilation of new knowledge.</li></ul>	<b>Most</b> key science concepts are addressed in a context-rich setting.	<b>Some</b> key science concepts are addressed in a context-rich setting.	<b>Few</b> key science concepts are addressed in a context-rich setting.

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WORK STUDENTS DO RUBRIC	(5)	(3)	(1)
<b>ENGAGING PRIOR KNOWLEDGE</b> Instructional materials include strategies that help students to: <ul style="list-style-type: none"><li>▪ Activate (think about) their current understanding of a science concept,</li><li>▪ Make explicit (e.g., write down) their understanding of a science concept.</li></ul>	The materials include <b>many</b> opportunities to engage prior knowledge.	The materials include <b>some</b> opportunities to engage prior knowledge.	The materials include <b>few</b> opportunities to engage prior knowledge.
<b>METACOGNITION</b> Instructional materials include strategies that help students to: <ul style="list-style-type: none"><li>▪ Recognize the goals of the chapter/unit as well as their own learning goals,</li><li>▪ Assess their own learning,</li><li>▪ Reflect, over time, on <b>what</b> and <b>how</b> they have learned.</li></ul>	The materials include <b>many</b> opportunities to promote metacognition.	The materials include <b>some</b> opportunities to promote metacognition.	The materials include <b>few</b> opportunities to promote metacognition.
<b>ABILITIES NECESSARY TO DO SCIENTIFIC INQUIRY</b> <b>INQUIRY</b> Instructional materials provide opportunities for students to develop the abilities necessary to do scientific inquiry by: <ul style="list-style-type: none"><li>▪ Asking and identifying questions and concepts to guide scientific investigations,</li><li>▪ Designing and conducting scientific investigations,</li><li>▪ Using appropriate technology and mathematics to enhance investigations,</li><li>▪ Formulating and revising explanations and models,</li><li>▪ Analyzing alternative explanations and models,</li><li>▪ Accurately and effectively communicating results,</li><li>▪ Generating additional testable questions.</li></ul>	The materials include <b>many</b> opportunities to develop the abilities of scientific inquiry.	The materials include <b>some</b> opportunities to develop the abilities of scientific inquiry.	The materials include <b>few</b> opportunities to develop the abilities of scientific inquiry.
<b>UNDERSTANDINGS ABOUT SCIENTIFIC INQUIRY</b> Students understand that the work scientists do includes: <ul style="list-style-type: none"><li>▪ Inquiring about how physical, living, or designed systems function,</li><li>▪ Conducting investigations for a variety of reasons,</li><li>▪ Utilizing a variety of tools, technology, and methods to enhance their investigations,</li><li>▪ Proposing explanations based on evidence, logic, and historical and current scientific knowledge,</li><li>▪ Communicating and collaborating with other scientists in ways that are clear, accurate, logical, and open to questioning.</li></ul>	The materials include <b>many</b> opportunities to help students understand the work scientists do.	The materials include <b>some</b> opportunities to help students understand the work scientists do.	The materials include <b>few</b> opportunities to help students understand the work scientists do.
<b>ACCESSIBILITY</b> Instructional materials accessible to students address/consider: <ul style="list-style-type: none"><li>▪ Varied learning abilities/disabilities,</li><li>▪ Special needs (e.g., auditory, visual, physical, speech, emotional),</li><li>▪ English language proficiency,</li><li>▪ Cultural differences,</li><li>▪ Different learning styles,</li><li>▪ Gender.</li></ul>	The materials are <b>consistently accessible</b> to diverse learners, providing opportunities for all students to achieve.	The materials are <b>often accessible</b> to diverse learners, providing some opportunities for all students to achieve.	The materials are <b>rarely accessible</b> to diverse learners, providing limited opportunities for all students to achieve.

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ASSESSMENT RUBRIC	(5)	(3)	(1)
<b>ASSESSMENT SYSTEM</b>	Curriculum documentation includes a description of the overall system or approach to assessment and includes: <ul style="list-style-type: none"> <li>Description of alignment with national standards and research on assessment practices,</li> <li>Guidance for teachers in the use of the assessments,</li> <li>Evidence that assessments within the curriculum were field-tested and/or evaluated.</li> </ul>	Curriculum documentation includes <b>most</b> of the noted criteria.	Curriculum documentation includes <b>few</b> of the noted criteria.
<b>QUALITY</b>	High-quality assessments: <ul style="list-style-type: none"> <li>Measure what students know and are able to do,</li> <li>Align with learning goals and the mode of instruction,</li> <li>Stress application of what students know and are able to do in new or different situations,</li> <li>Provide students the opportunity to assess their own learning.</li> </ul>	The instructional materials have <b>many</b> high-quality assessments.	The instructional materials have <b>some</b> high-quality assessments.
<b>MULTIPLE MEASURES</b>	Examples of assessments include: <ul style="list-style-type: none"> <li>Performance tasks,</li> <li>Quantitative assessments,</li> <li>Constructed response questions,</li> <li>Project-based tasks,</li> <li>Portfolios.</li> </ul>	A <b>wide variety</b> of assessment measures and corresponding scoring guidelines (e.g. rubrics, answer keys) is provided.	<b>Some variety</b> of assessment measures is provided.
<b>USE OF ASSESSMENTS</b>	Instructional materials include assessments that provide ways to modify instruction, including: <ul style="list-style-type: none"> <li>Assessments used for purposes other than determining student grades,</li> <li>Assessments designed to focus on learning as well as evaluation,</li> <li>Student work informs the design or redesign of teaching strategies or sequences.</li> </ul>	<b>Most</b> assessments inform both student understanding and instruction.	<b>Some</b> assessments inform both student understanding and instruction.
<b>ACCESSIBILITY</b>	The three key characteristics of accessible assessments: <ul style="list-style-type: none"> <li>Free from bias (e.g., gender, cultural),</li> <li>Provide accommodations for individual and cultural differences,</li> <li>Provide accommodations for differences in learning styles and language proficiency.</li> </ul>	<b>Most</b> assessment tasks exhibit these three characteristics.	<b>Some</b> assessment tasks exhibit these three characteristics.

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WORK TEACHERS DO RUBRIC	(5)	(3)	(1)
<b>INSTRUCTIONAL MODEL</b> The curriculum's instructional model is described in the teacher's materials and supports teachers to implement the model to organize and sequence learning experiences. Effective instructional models provide opportunities for students to: <ul style="list-style-type: none"> <li>▪ Engage with a scientific question, event, or phenomenon,</li> <li>▪ Explore and create their own explanations,</li> <li>▪ Connect their ideas to scientific explanations,</li> <li>▪ Extend, apply and evaluate what they have learned.</li> </ul>	The materials frequently guide teachers in using an instructional model to organize and sequence learning experiences.	The materials occasionally guide teachers in using an instructional model to organize and sequence learning experiences.	The materials rarely guide teachers in using an instructional model to organize and sequence learning experiences.
<b>EFFECTIVE TEACHING STRATEGIES</b> Instructional materials support teacher's use of effective teaching strategies that prompt students to: <ul style="list-style-type: none"> <li>▪ Communicate and represent ideas in a variety of ways;</li> <li>▪ Use journals/science notebooks or write in authentic ways;</li> <li>▪ Learn in cooperative groups;</li> <li>▪ Provide feedback to their peers and reflect on their own learning;</li> <li>▪ Access prior knowledge and make connections to ideas using cues, questions, and graphic organizers.</li> </ul>	The materials suggest many effective teaching strategies.	The materials suggest some effective teaching strategies.	The materials suggest few effective teaching strategies.
<b>TEACHING STRATEGIES FOR INQUIRY</b> Instructional materials are designed to support teacher's use of teaching strategies for inquiry including: <ul style="list-style-type: none"> <li>▪ Focusing and supporting inquiries while interacting with students,</li> <li>▪ Orchestrating discourse among students about scientific ideas,</li> <li>▪ Encouraging and modeling: <ul style="list-style-type: none"> <li>○ the skills of scientific inquiry,</li> <li>○ curiosity about science,</li> <li>○ openness to new ideas and data,</li> <li>○ legitimate skepticism about scientific ideas and evidence.</li> </ul> </li> </ul>	The materials suggest many teaching strategies for inquiry.	The materials suggest some teaching strategies for inquiry.	The materials suggest few teaching strategies for inquiry.
<b>SUPPORT FOR THE WORK TEACHERS DO</b> Instructional materials support the work teachers do by providing: <ul style="list-style-type: none"> <li>▪ Pertinent content background information,</li> <li>▪ Examples of typical student conceptions,</li> <li>▪ Explanations of specific instructional models and teaching strategies to improve student understanding (see above),</li> <li>▪ Resources to assist and enhance instruction (e.g., transparencies, test bank, videos, CDs, software, online website and/or resources),</li> <li>▪ A list of material and equipment needs including information about maintenance and safe use,</li> <li>▪ Technical support for the use of equipment, multi-media, and technology resources.</li> </ul>	Materials provide comprehensive support to help inform and enhance instruction.	Materials provide some support to help inform and enhance instruction.	Materials provide little support to help inform and enhance instruction.

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